IEEE P802.11
Wireless LANs

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| AMP PHY Introduction |
| Date: 2025-07-28 |
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Abstract

This document contains Proposed Draft Text (PDT) for the AMP PHY Introduction of the proposed 11bp (AMP, Ambient Power) amendment to the 802.11 standard.

Revision information

The following is a summary of the important changes that occurred within each revision of this document:

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| **Revision** | **Major changes** |
| 0 | Initial revision |
| 1 | Edits made based on Amichai’s feedback, 2025.09.15 |
| 2 | Edits made based on comments during presentation AM2, 2025.09.15 |
| 3 | Edits made based on TTT member comments. |
| 4 | Edits made during AM1, 2025.09.15. Corrected header/footer. Removed paragraph “By using PHY entity…” |
| 5 | Edits made based on comments in PM1, 2025.09.18 |

Introduction

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbp Draft. The abstract, revision information, introduction, explanation of the proposed changes and references sections are not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbp Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

## Explanation of the proposed changes:

The proposed changes to the 802.11 TGbp draft within this document are based on the following motions adopted by the TGbp task group:

### Relevant passing motions [1]:

* There are no related motions.

Text to be adopted begins here:

***TGbp editor: Please add the following subclauses to AMP PHY Clause 40, as part of the 802.11bp draft D0.1:***

# 40. Ambient Power (AMP) PHY specification

## 40.1 Introduction to the AMP PHY

This clause specifies the PHY entity for an Ambient Powered (AMP) system operating in the 2.4 GHz and sub-1 GHz bands. An AMP non-AP STA operates using extremely low power, potentially using energy harvested from the environment like wireless signals of the AMP DL PPDU, Wireless Power Transfer (WPT), or using a life-time battery.

For each operating band, the AMP PHY is described separately in the downlink and uplink directions. Here, the downlink direction generally refers to messages transmitted from an AMP AP to a non-AP AMP STA or an AMP-enabled non-AP STA using AMP downlink (DL) PPDUs. The uplink direction generally refers to communications in the opposite direction using AMP uplink (UL) PPDUs.

## 40.3 AMP PHY (2.4GHz)

### 40.3.1 Introduction

This subclause describes the AMP PHY in the 2.4 GHz band. It describes the uplink and downlink PPDU formats. It describes the modulation and coding schemes (MCSs) used for the data portions of the uplink and downlink PPDUs. It describes the transmitter block diagram and the downlink (DL) carrier waveform. It lists timing related parameters. This subclause also contains a mathematical description of signals. It describes the AMP preamble and data fields. Finally, this subclause includes both the transmit and receive specifications and procedures.

## 40.4 AMP PHY (Sub-1 GHz)

### 40.4.1 Introduction

This subclause describes the AMP PHY in the sub-1 GHz bands. It describes the uplink and downlink PPDU formats. It describes the modulation and coding schemes (MCSs) used for the data portions of the uplink and downlink PPDUs. It describes the transmitter block diagram and the downlink (DL) carrier waveform, as well as waveform used for Wireless Power Transfer (WPT). It lists timing related parameters. This subclause also contains a mathematical description of signals. It describes the AMP preamble and data fields. Finally, this subclause includes both the transmit and receive specifications and procedures.

Text to be adopted ends here.

**References:**

1. [11-24/1613r10](https://mentor.ieee.org/802.11/dcn/24/11-24-1613-10-00bp-specification-framework-for-tgbp.docx): 11-24-1613-10-00bp-specification-framework-for-tgbp, Yinan Qi (OPPO)